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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,281	01/23/2004	Tomonori Kataoka	2004_0100A	4690

513 7590 05/11/2007

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EXAMINER	
KRASNIC, BERNARD	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
05/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,281	KATAOKA ET AL.	
	Examiner	Art Unit	
	Bernard Krasnic	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5-10-2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 1, line 2: Section -- CROSS REFERENCE TO RELATED APPLICATIONS -- with the related application "JAPAN 2003-017939 01/27/2003" should be included above the "BACKGROUND OF THE INVENTION" section.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Schonfeld ("VORTEX: Video retrieval and tracking from compressed multimedia databases – Visual Search Engine" – IEEE, Jan. 1999, pages 1-10).

Re Claim 1: Schonfeld discloses an image-processing method designed for object detection / retrieval and tracking in a moving image / video, comprising detecting an object / object recognition by matching a template image / template matching with an image / I-frame subject to object detection; and determining an amount of displacement / motion compensation of the detected object / object recognition in accordance with

information on a motion vector / motion compensation information of an encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection (see Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Re Claim 2: Schonfeld further discloses an object in an intra-coded picture (I-picture) / I-frame is detected by said detecting the object / object recognition by matching the template image / template matching with the image / I-frame subject to object detection, wherein an object in a forward predictive picture (P-picture) / P-frame is detected by said determining the amount of displacement / motion compensation of the detected object / object recognition in accordance with information on the motion vector / motion compensation information of the encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection, and wherein an object in a bi-directionally predictive picture (B-picture) / B-frame is detected by said determining

the amount of displacement / motion compensation of the detected object / object recognition in accordance with information on the motion vector / motion compensation information of the encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection (see Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Re Claim 3: Schonfeld further discloses counting number of frames / N_0 in which an object is tracked by said determining the amount of displacement / motion compensation of the detected object / object recognition in accordance with information on the motion vector / motion compensation information of the encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection; and comparing a reference frame / I-frame number with the number of the frames counted / N_0 by said counting the number of the frames in which the object is tracked, wherein, when the number of the frames counted / N_0 by said counting the number of

the frames in which the object is tracked is greater than the reference frame / I-frame number, then object detection is performed by said detecting the object / object recognition by matching the template image / template matching with the image / I-frame subject to object detection (template matching is applied to the I-frame and therefore once every N_0 frames which represents the number of frames counted or similarly once the counted number of frames is greater than the reference frame number or the next I-frame, re-initiate the template matching on that new I-frame to guarantee that the tracking error remains small , Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Re Claim 4: Schonfeld further discloses said detecting the object / object recognition by matching the template image / template matching with the image / I-frame subject to object detection comprises comparing a reference value / I-frame values with a similarity value / template values between the template image / template and the image / I-frame subject to object detection; and employing results from detection / decision area of an object in at least one frame behind / motion compensation information when

the similarity value is smaller than the reference value, in order to practice object detection in an intra-coded picture (I-picture) (The template matching compares the I-frame data with the data from the template in order to decide if the decision area is the actual template which is being looked for, and motion compensation information from previous frame or frames may be used in order to further identify the template matching decision area, Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Re Claim 5: Schonfeld further discloses decoding / decoder an encoded moving image / MPEG encoded video, thereby generating the image / frame subject to object detection; editing / deciding decision area center or centering for detection box enclosing the image subject / frame to object detection as a first image; and composing the edited first image with a second image / rectangular box enclosure, thereby producing a composed image / Fig. 8 (the decision area of the frame is enclosed by a rectangular box for displaying visually the marked targets), wherein said detecting the object / object recognition by matching the template image / template matching with the

image subject to object detection / object recognition includes providing information on a position / decision region of a detected object, wherein said determining the amount of displacement / motion compensation of the detected object in accordance with information on the motion vector / motion compensation information of the encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection includes providing information on a position / decision region of a displaced object, and wherein said editing / deciding decision area center or centering for detection box enclosing the image subject to object detection as the first image includes editing the first image in accordance with the information on the position / decision area (see Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", pages 6-7, Section - Adaptive Decision Area, page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Re Claim 6: Schonfeld further discloses detecting a scene change / search process in the image subject to object detection / object recognition (a scene change or the search process for an object similar to a template is conducted on the I-frames until one such I-

frame is found for further tracking procedures, or in other words the I-frame is searched and if no corresponding template match is found, the next I-frame is searched and so on, page 7, Section – 4.4 Object Search and Retrieval), wherein an object in the image / I-frame subject to object detection / object recognition in which a scene has been changed / search process is successful is detected by said detecting the object by matching the template image / template matching with the image subject to object detection (the I-frame is searched for a corresponding template match and if no such corresponding template is found, the next I-frame is searched using template matching and so on, once the template in the I-frame is found, the typical tracking procedure as described in claim 1 is continued, page 7, Section – 4.4 Object Search and Retrieval).

Re Claim 8: Schonfeld further discloses the object to be detected is a human face (see Fig. 8).

Re Claim 9: Schonfeld further discloses wherein said detecting the object / object recognition by matching the template image / template matching with the image subject to object detection / object recognition and said determining the amount of displacement / motion compensation of the detected object in accordance with information on the motion vector / motion compensation information of the encoded moving image / MPEG encoded video, the detected object being the object detected by said detecting the object by matching the template image with the image subject to object detection, can be switched over therebetween / switched at definite time intervals or equivalently frame

intervals N_0 (see Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", pages 6-7, Section - Adaptive Decision Area, page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

As to claim 10, the claim is the corresponding image processor claim to claim 1 respectively. The discussions are addressed with regard to claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schonfeld. The teachings of Schonfeld have been discussed above.

Re Claim 7: Schonfeld discloses an image-processing method comprising detecting any object / object recognition in a moving image / video; editing / deciding decision area center or centering for detection box enclosing said moving image in accordance

with information on a position / decision region of said detected object / object recognition; composing / Fig. 8 (the decision area of the frame is enclosed by a rectangular box for displaying visually the marked targets) the edited moving image with another moving image / rectangular box (see Figs. 2 and 8, pages 3-4, Section – 4. Tracking and Retrieval on Compressed Data, pages 4-5, Section – 4.1 Forward Prediction, paragraph "Next, we assume that the latest ...", lines 7-15, paragraph "Therefore, we can determine the new position ...", page 5, Section – 4.2 Bidirectional Prediction, paragraph "Because of the way they are encoded ...", paragraph "We use the control and motion information ...", pages 6-7, Section - Adaptive Decision Area, page 7, Section – 4.4 Object Search and Retrieval, paragraph "In order to ensure a balance between ...", page 8, top left column, lines 8-11, "Displaying the video sequence with visually marked targets ...").

Although Schonfeld fails to fairly suggest encoding and compressing the composed image, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schonfeld's method by including the encoding and compressing step upon the composed image because if for some military or surveillance or videoconferencing purposes (see Fig. 7, the composed image is the train or some type of object which is tracked and enclosed with a rectangular box) this composed image is needed for viewing, an encoded and compressed composed image is necessary in order to provide maximal speeds in transmission across some type of medium (LAN or wireless).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rabinowitz et al discloses an apparatus and method for detection of scene changes in motion video; Imagawa discloses a method and device for image processing; Schonfeld discloses VORTEX: Video retrieval and tracking from compressed multimedia databases; Schonfeld discloses Real-Time scene change detection on compressed multimedia bitstream based statistical sequential analysis.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic
May 3, 2007

JINGGE WU
SUPERVISORY PATENT EXAMINER